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DYNAMICS OF SUSPENDED SEDIMENT PLUMES IN LAKE ONTARIO

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Type 1 Progress Report

ERTS-1

a. Dynamics of Suspended Sediment Plumes in Lake Ontario

ERTS-1 Proposal No.: 342-4D

b. GSFD ID: IN 058

c. Statement and explanation of any problems that are impeding the progress of the investigation.

None.

d. Discussion of accomplishments during the reporting period and those planned for the next reporting period:

The Survey's isodensitracer is being used to help delineate the subtle tonal contrasts frequently encountered in this study. This instrument is capable of discerning a wide range of density levels and is currently being used to help identify a small plume in Lake Ontario about 1.5 kilometers offshore near the mouth of the Genesee River. This plume is probably caused by suspended matter issuing from a submerged sewer outfall near Irondequoit, N.Y. The plume can be seen in bands 4 and 5 of image 1423-15224 obtained 19 September 1973. Copies were made of a number of photographs obtained from Stanford Research Institute's ESIAC console. These photographs will be incorporated into the final report to NASA.

e. Discussion of significant results and their relationship to fundamental applications or operational problems.

Imagery obtained on 25 January 1974, shows a well-defined plume at the mouth of the Niagara River and a much smaller but intense plume emanating from Port Dalhousie Harbor, Ontario. Additionally, a plume can be seen trailing eastward from the outer end of the Welland Canal. This is the first time that a clear-cut winter view of these plumes was detected by the ERTS satellite outside the navigation season. Since the Welland Canal was not in operation, it is likely that the plume, visible along the canal's outer jetty on frames 1551-15313-4-5, was the result of eastward moving turbid waters emanating from Port Dalhousie Harbor to the west.

- f. A listing of published articles and/or papers, preprints, in-house reports, abstracts of talks, that were released during the report period:

None.

- j. Recommendation concerning practical changes in operations, additional investigative effort, correlation of efforts and results as related to maximum utilization of the ERTS system:

Imagery beyond the March 17, 1974, cutoff date for this proposal is urgently needed. I have requested that the cutoff date be extended to June 30, 1974. This will ensure coverage of the 1974 high-flow season which normally begins around April 1 in western New York. During the spring freshet season the Genesee River and Oswego River plumes are clearly definable and at their greatest areal extent. Spring imagery of these plumes is needed to help define movement and fate of the heavy sediment load entering Lake Ontario from these watercourses.

- h. A listing by date of any changes in Standing Order Forms.

None.

- i. ERTS Image Description forms:

A new listing is in preparation.

- j. Listing by date of any changed Data Request forms submitted to Goddard Space Flight Center/NDPF during the reporting period:

None.